

15 September 2020

# FOGO (or FO) in MUDs

Western Australia

Presented by Mike Ritchie









### Why FOGO? (or FO only in MUDs)?

- 1. To hit the Targets
- 2. Greenhouse gas
- 3. It is often cheaper than landfill
- 4. Technology is simple
- 5. Commercial food is a bonus





#### Waste Australia



#### Waste Australia



# **National targets**

- Ban the export of waste plastic, paper, glass and tyres, commencing in the second half of 2020
- Reduce total waste generated in Australia by 10% per person by 2030
- 80% average resource recovery rate from all waste streams following the waste hierarchy by 2030
- Significantly increase the use of recycled content by governments and industry

- 5. Phase out problematic and unnecessary plastics by 2025
- Halve the amount of organic waste sent to landfill by 2030
- 7. Make comprehensive, economy-wide and timely data publicly available to support better consumer, investment and policy decisions

Note: All targets will be measured against baselines in the 2018 National Waste Report

The 2018 National Waste Policy: Less waste, more resources was agreed by Australia's Environment Ministers and the President of the Australian Local Government Association in December 2018. It sets a new unified direction for waste and recycling in Australia.



### FOGO to hit National Target





## Organics is the biggest stream to landfill



1.3 MT = 6%



Plastic bags Tyres Computers Printer Cartridges TV CDL Household paint Oil Cigarette butts

#### **10 Mt**



**Climate change** = 2.7%

of Australia's emissions



## **FOGO** Collection





#### Permitted 🗸

#### Food waste :

- Meat
- Fruit and vegetables
- Tea bags and coffee grinds
- Seafood including shells
- Bread and dairy products
- Egg shells
- Out of date food (unpackaged)
- Food scraps

#### Garden organics :

- Lawn clippings
- Garden prunings
- Weeds and flowers

#### Paper and cardboard :

- Food-soiled paper/cardboard
  - (e.g. fish and chips, kebab wrappers, pizza boxes)
- Tissues and paper towels
- Shredded paper
- Pet droppings

#### Not Permitted X

- General waste
- Nappies or hygiene products (including compostable)
- Non-compostable bags
- Ceramics or glass
- Garden hoses
- Plastic bags or packaging
- Plant pots (plastic or ceramic)
- Rocks, soil or sand
- Textiles
- Timber (treated or untreated)
- Turf
- Coffee pods
- Biodegradable packaging
- Shiny paper, waxed paper and cardboard with labels, tape etc



# Can FOGO work in MUDs?

- 10 million of 21.7 million tonnes of landfilled waste is organic
- Of that, close to **7 million tonnes** is food waste and gardens organics





# Main arguments against FOGO in MUDs

- 1. Muds don't generate much garden organics (GO)
- 2. The FOGO will be heavily contaminated
- 3. Nowhere to store FOGO bin
- 4. There are no markets





### 1. "MUDs don't generate much GO"

- Adding FO (Food organics) to Garden Organics (GO) bins generally attracts:
  - over 60% of the available food FO, and
  - over 80% of the available GO
- In Albury, FOGO is achieving:
  - 74% capture of food FO
  - 90%+ GO
- Doesn't matter about the mix of FO and GO as composters can blend with other materials.
  - MUDs generate FO but there is plenty of GO available.



## 2. "FOGO will be heavily contaminated"

- True for some councils, however:
- Best practice FOGO services: <1% contamination rates
  - (kerbside recycling = 10% av contamination rate)
- Penrith started 32% now 4%
  - Highest NESB in Australia
  - Made it work
- Albury, Wodonga, Indigo, Hume = 0.4%
- Lake Macquarie = 0.8%
- Vic av = 4%

#### Solutions:

- 1. Targeted education / behaviour change
- 2. Composters manage inputs to remove contamination
  - MUD processing line if required at composter
- 3. Price Contamination schedule for Councils
  - increased gate fees for contamination



### 2. "FOGO will be heavily contaminated"





## 3. "Nowhere to store FOGO bin"

- Less than 3% of MUDs have limited room for new FOGO bin
  - (MRA study of 300 MUDs in NSW)
- Not a one size fits all;
  - Some sites residents will need to carry bags to FOGO bins
  - Some sites will provide 140/240 bins on each level
  - Some will use chutes (not common)
- Number of red bins will be reduced
  - over 50% of contents will be transferred to FOGO bin
  - Many Councils move the red bin to fortnightly (FN)
  - Some reduce the volume of the red bin



#### Plenty of MUDs doing FOGO or FO

#### NSW

- <u>42 councils implementing FOGO</u>
- (Penrith and Randwick)

#### VIC

- 5 metro Melbourne FOGO
  - 30 by 2025 metro
- 12 rural

#### SA

- 15 metro Adelaide FOGO
- 2 rural

#### WA

• 4 metro Perth FOGO (all by 2025)







### 4. "There are no markets"

- Virtually unlimited ag markets for FOGO composts
- Requires 0.09% of ag land
  - to consume compost from all Australian households
- Farmers need the organics
  - Most depleted soils in the world
  - But farmers are price capped based on superphosphate costs
- Compost MUST be high quality
  - Contamination must be actively managed and priced
  - FOGO must be a valued commodity (not an alternative to landfill)





# Summary FOGO Implementation in MUDs

- 1. Composter will:
  - 1. Price for contamination
  - 2. Remove contamination
  - 3. Blend FO with GO and other material
  - 4. Produce a high quality compost
- 2. Concerns about higher contamination are valid, but this can be overcome by composters and targeted education
- 3. Most MUDs have room for FOGO bins
- 4. Huge markets for high quality compost



## Benefits of FOGO

- Reduce waste to landfill by 50% or more
- Allows for Commercial FO to also be collected
- Reduce Australia's ghg emissions by up to 2.7%
- Reduce landfill odour
- Produce millions of tonnes of compost for Australian farmers





# How do I decide? CCM Options



#### **BAU 2 Bins**

- Education
- 17-20% recycling rate
- Wk v FN

#### GO 3 Bins

- Education
- 40-60% recycling
- Wk v FN

#### FOGO 3 Bins

- Kitchen Caddy (+ liners supplied by Cl)
- Education
- 60-80% recycling rate
- Wk v FN



# **CCM** Options

BAU Fornightly GO		Weekly Garbage and weekly FOGO	Weekly garbage and fornightly FOGO	Fornightly garbage and weekly FOGO	
Option 1	Option 2	Option 3A (Caddies provided)	Option 4 (Caddies provided)	Option 5 (Caddies provided)	
		Option 3B (Caddies not provided)			





#### 1. Cost per Household (\$/hh, NPV, \$/t etc)



### System Results: \$/t in Year 1 (2017/2018)





### System Results: \$/t in Year 2 (2018/2019)





### 2. Diversion % - Recovery Rates





### 3. Greenhouse Gas Emissions





### 4. Vehicle Kilometres Travelled (VKT)





# Multi Criteria Analysis





# Multi Criteria Analysis

System Option		Social (15%)	Governance (25%)	Environmental (35%)	Economic (25%)	Total (100%)	Rank
Option 1	2 bin BAU	15%	11%	16%	25%	65%	3
Option 2	Fortnightly GO	11%	19%	19%	13%	61%	5
Option 3A	Weekly Garbage and FOGO (Caddies provided)	8%	25%	25%	6%	64%	4
Option 3B	Weekly Garbage and FOGO (Caddies <u>not</u> provided)	4%	19%	25%	6%	54%	6
Option 4	Weekly garbage and fortnightly FOGO	4%	23%	28%	13%	66%	2
Option 5	Fortnightly garbage and weekly FOGO	8%	25%	30%	13%	75%	1



# CCM Analysis: Resource Recovery





# Lessons

- FO and FOGO can work in MUDs
- Need education and behaviour change
- Contamination will be higher at first
  - but improve as behaviours become normalised
- Undertake surveys, feedback, door knocking, events
- Services to suit the building- not one size fits all
  - Basement bins; floor bins; cleaner services, chutes
- FO is not an alternative garbage disposal it needs to focus on quality
- Council should close the loop by buying some back for parks and fields
- Analyse the options both qualitative and quantitative



# thank you

#### **MRA Consulting Group**

Suite 408 Henry Lawson Building 19 Roseby Street Drummoyne NSW 2047

P 02 8541 6169 E info@mraconsulting.com.au

mraconsulting.com.au





#### It is cheaper to collect and compost than landfill

Facility Type	Opex \$/t	Application	Scale in Australia
Windrow	\$60-80	Rural - no odour control	0-100Kt
Windrow with MAF	\$70-90	Rural - moderate odour control	0-100Kt
Engineered Tunnels	\$120-\$150	Urban – strict odour control	40-250Kt









#### FOGO Costs FOGO cheaper - especially if Council has a GO bin





#### Nappies

FN garbage – no increase in odour over 2 weeks (source LMCC)





#### Nappies

FN garbage – no increase in odour over 2 weeks (source LMCC)



